Rubber World

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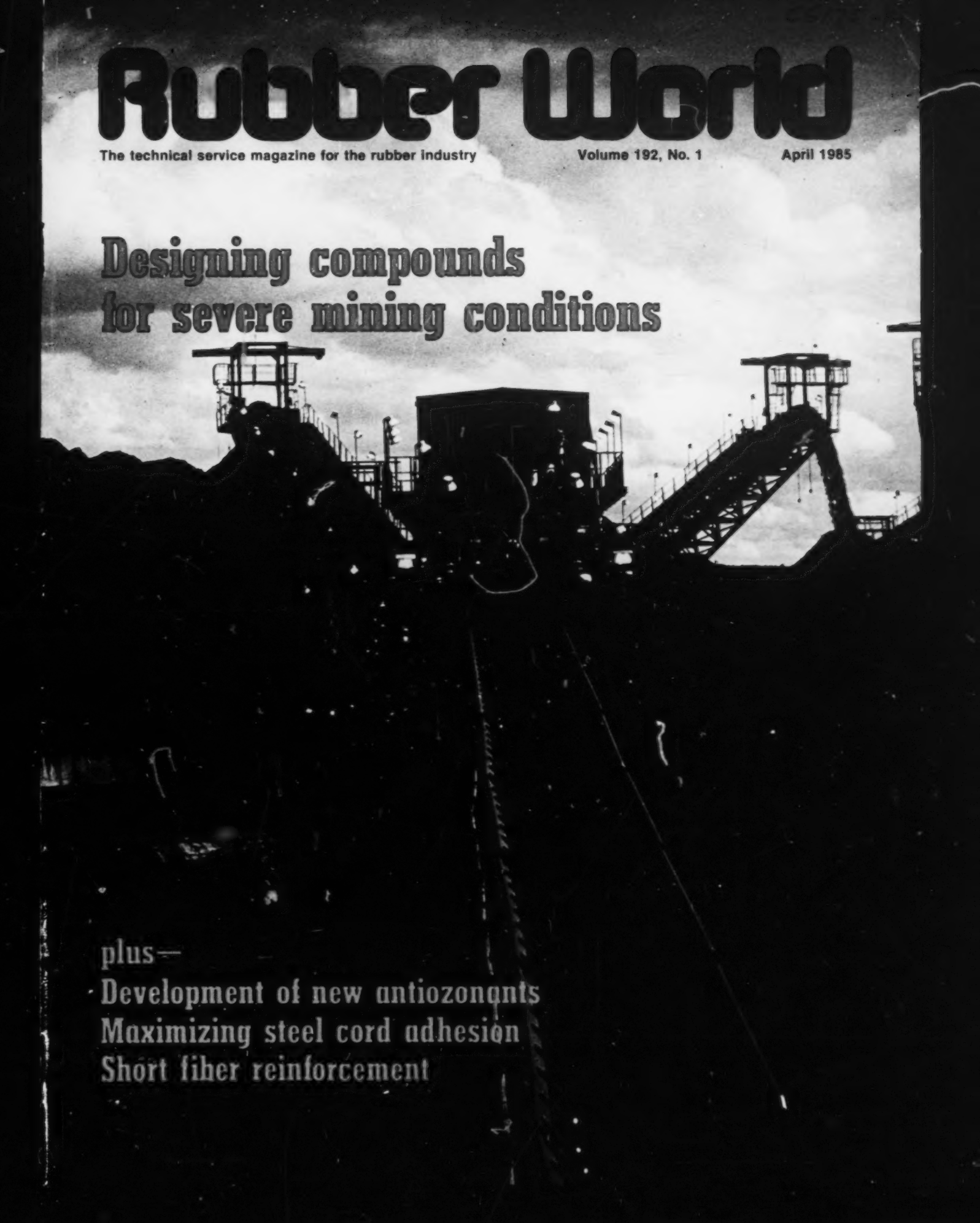
Designing compounds for severe mining conditions



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Development of new antiozonants

Maximizing steel cord adhesion

Short fiber reinforcement

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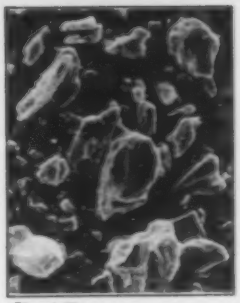

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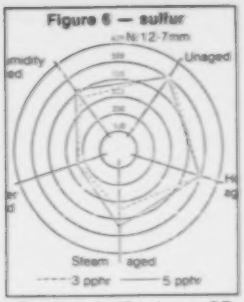

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by Jon Menough, contributing technical services editor. Author looks at the advantages and disadvantages of a short fiber reinforcement available for rubber.

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by G.C. Blackshaw, R.C. Burkey, H.F. Schwarz, Polysar Limited, and D. Kershaw and R.E. Melley, Syncrude Canada Limited. Article discusses factors influencing the design and development of rubber compounds for extra-heavy-duty service in the oil sands and hard rock mining industries.

32 The development of new antiozonants for elastomers
by G. Bertrand and E. Leleu, Vulnax International Limited. Authors look at antiozonants now on the market, all derivatives of p-phenylene diamine, and show the work done to optimize the structure of the substituted p-phenylene diamine derivatives as well as the work done to understand the mechanism of ozone attack and protection. Authors also examine evidence of the antiozonant properties of new chemical families among which are several non-staining antiozonants.

37 Maximize steel cord adhesion using a combined system of cobalt and resorcinol/formaldehyde resin
by P.E.R. Tate, Manchem Limited. Article shows how the achievement and maintenance of high adhesion and compound properties are obtainable by the correct choice and combination of ingredients, even under the most severe aging conditions.

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Cover

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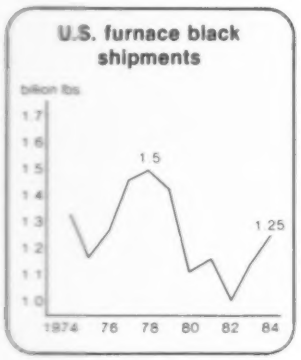
72¢/lb., Resin 731S becomes 88¢ and Resin 731SA moves to 78¢/lb. these prices are for truckload quantities. Resin 3072 goes up to 35¢/lb. in bulk quantities. The above prices became effective April 1, 1985.

Akzo Chemie America, Noury Chemicals eliminated its 10¢/lb. temporary price allowance on all grades of MEK peroxides effective April 1, 1985. New price levels for Noury's product line purchased in quantities of 2,000 lbs. or over become: Cadox M-50, $1.52/lb.; Cadox M-30, $1.42/lb.; Cadox MDA-30, $1.42/lb.; and Cadox F-85, $1.62/lb.

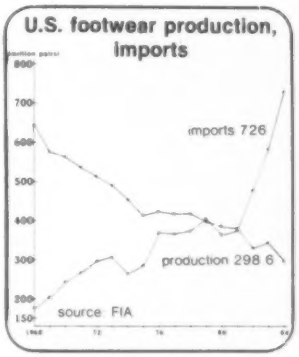
Markets, news



Continuing the recovery which began in 1983, domestic furnace black shipments by U.S. producers increased 10% in 1984 to 2.76 billion pounds according to J.M. Huber Corp. The percentage gain was almost as large as the 11.5% growth in 1983. The year-to-year changes throughout 1984 dropped sharply indicating a maturing of the current business cycle. Whereas the first half of 1984 was 20% greater than 1983's same period, the second half was up by less than 1%, with the fourth quarter of 1984 nearly 1% lower than 1983. Huber's conclusion is that 1985 furnace black demand will decline about 2%. The lower demand will entirely be within the automotive tire sector.

Consumption of black increased in all major end use segments in 1984. Black to tire and tire products gained by over 9%. The combined usage by all other sectors gained in excess of 12%. The U.S. became a net importer of carbon black in 1984 as the 155 million pounds of imports exceeded exports by 81 million pounds. The trade balance was a positive 9 million pounds in 1983 and has declined since 1980 when it was 136 million pounds.

Overcapacity is a problem in the domestic carbon black industry according to Columbian Chemicals as they announced they were closing its Conroe, TX plant. The plant, Columbian's oldest, had an annual capacity of 125 million pounds. The plant's age and geographic location made continued operation uneconomic according to the company.



Domestic footwear production in 1984 dropped 13.3% to its lowest level in 63 years according to Commerce Department figures. Imports rose 25% to their highest level in U.S. history. Domestic manufacturers produced 298.6 million pairs of shoes in 1984, the first time since 1921 that production fell below 300 million. Imports rose to 726 million pairs accounting for 72% of the U.S. market. The U.S. International Trade Commission announced it would begin an investigation into the injury that imports have caused the domestic footwear industry.

Shipments of passenger tires in the U.S. increased 10.78% in 1984 according to the Rubber Manufacturers Association. More than 201 million tires were shipped, 50.9 million in the original equipment market (a 16.3% increase) and 144.5 million were shipped to the replacement market (a 7.9% increase). Shipments of truck and bus tires increased 10.7% in 1984 to 40.8 million. Radials accounted for 76% of passenger and 38% of truck and bus production.

RMA tire & tube shipments & production report
(figures in thousands of units)

Passenger Tires	**1984**	**1983**	**% Change**
Shipments			
Original Equipment	50,993	43,845	+16.30
Radial	42,728	36,599	+16.75
Replacement	144,580	133,964	+7.92
Radial	**109,498**	93,915	**+16.59**
Export	6,064	4,206	+44.17
Radial	4,375	2,899	+50.91
Total	201,637	182,015	+10.78
Radial	**156,601**	133,413	**+17.38**
Production	172,934	156,256	+10.67
Radial	131,512	109,796	+19.78
Truck & Bus Tires			
Shipments			
Original Equipment	7,777	5,519	+40.91
Radial	4,108	2,614	+57.15
Replacement	31,707	30,301	+4.64
Radial	11,332	10,268	+10.36
Export	1,333	1,030	+29.42
Radial	593	483	+22.77
Total	40,817	36,850	+10.77
Radial	16,033	13,365	+19.96
Production	36,441	30,667	+18.83
Radial	13,753	9,740	+41.20

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